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THE EMERGENCE OF POLYCENTRICITY IN URBAN CLIMATE GOVERNANCE: LESSONS FROM CITIES IN INDIA

Anita Yadav[1*], Manish Kumar Shrivastava[2] and Naqui Anwer[1]

[1]*Department of Sustainable Engineering, TERI School of Advanced Studies, India, anita.yadav@terisas.ac.in, naqui.anwer@terisas.ac.in*
[2] *Centre for Global Environment Research, TERI, India manish.shrivastava@teri.res.in*

Abstract

Climate change and urbanization challenges have empowered Indian cities to shift from a top-down hierarchical governance approach to becoming sites of climate leadership and experimentation. Polycentric governance, with its decentralized, networked, and participatory nature, has gained traction in urban governance in India. Cities in India have developed climate action plans, integrated adaptation, mitigation, and resilience, while also joining global climate alliances to commit to targets, report progress, and foster collaborations. This paper argues that Polycentricism can help build capacity for urban climate governance by involving a diverse range of stakeholders in decision making process. How can elements of polycentricity in urban climate governance facilitate experimentation and innovation, and help in developing networks to build knowledge and skills? Can Polycentric approach to governance enable cities to respond quickly to changing circumstances by allowing flexible and responsive decision-making. This paper aims to explore these key questions using explorative and descriptive research methods, focusing on climate policies in two Indian cities, Indore, and Ahmedabad. While the concept of polycentric governance in Indian cities is relatively new, it presents significant potential in promoting sustainable urban development and enhancing city resilience in response to climate change.

Keywords: Polycentric Governance, Decision-making, Urban Governance, Climate Change, Subnational actors

1 Introduction

Cities are often recognized as major contributors to climate change, with their concentrated activities and behaviours serving as significant sources of greenhouse gas emissions. Simultaneously, cities are widely regarded as ideal locations for implementing and scaling up behavioural, technological, and economic, interventions for climate change adaptation and mitigation (IPCC, 2018). They are seen as "open, complex, self-organizing, adaptive, and evolving formations that are embedded in broader social, ecological, economic, technical, institutional, and governance structures" (Prieur-Richard et al. 2018). The 2015 Paris Agreement also emphasizes on vital role of local governments in the global response to climate. To achieve a better urban future for all, it is imperative to establish effective multi-level governance that can transform cities into low-emission, sustainable, and resilient urban systems which are inclusive and equitable. To advance local and urban climate action as per the Paris Climate Goals and Sustainable Development Goals, the COP27 Presidency has also created the Sustainable Urban Resilience for the next Generation (SURGe) programme (UN Habitat, 2022).

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In response to the escalating climate-related threats and the impending climate crisis, cities in India have awakened to the pressing need for action to prioritize urban resilience building as a means to prevent economic losses and foster sustainable urban development (Govindarajulu, 2020). As a result, they are actively engaging in the development of comprehensive climate-resilient urban growth strategies across diverse sectors. However, the accessibility of technical know-how, resources, and opportunities for capacity building determines the ability of local governments to participate in urban climate action. As efforts to enhance these capacities continue, we observe an evolution in the governance framework of cities, characterized by the emergence of new actors and the incorporation of elements of polycentricity within the broader federal governance architecture (Dubash, 2020). Indian cities are actively participating in various transnational networks to facilitate knowledge and experience sharing, and working on the development of city climate action plans in collaboration with various substate and non-state actors, national government ministries, civil society organizations at national/international level, multilateral agencies. (van der Heijden, 2019).

Cities should develop a comprehensive city action plan to cover both mitigations, focusing on reducing emissions, and adaptation, addressing the effects of harsh weather and global warming, but is it sufficient? With the increasing frequency and intensity of urban floods, cyclones, harsh winters, and oppressive heatwaves in Indian cities, there would be a growing need for calibration to effectively address current and anticipated future climate conditions. This calibration is crucial in managing and reducing the risks associated with climate change impacts, particularly extreme weather events.

The article begins by providing an overview of the conceptual framing that addresses the emerging polycentricity in urban climate governance. Next, we present the methodological approach utilized in this study, followed by an empirical case study focused on two Indian cities, Indore and Ahmedabad. Moving forward, the third section of the article highlights the essential components of the urban climate governance approach in Indore and Ahmedabad.

2 Conceptual framing: Polycentricity and Urban Climate change Governance

Urban climate governance is a set of guidelines that organisations and members of the public, private, and civil society can use to express their climate goals, exercise their power, and manage the planning and execution of climate change (Anguelovski & Carmin, 2011). Polycentric governance involves the presence of multiple decision-making centres that are formally independent of each other, but adhere to certain sets of rules to work towards a common goal (Aligica and Tarko, 2012). Polycentricity in urban governance refers to a decentralized approach where multiple centers of power and decision-making exist, allowing for a more diverse and inclusive governance structure within a city (Vedeld *et al.*, 2021). Self-governance encompasses voluntary and non-obligatory climate-conscious actions undertaken by diverse actors (Sørensen and Triantafillou, 2016). In polycentric governance, decisions are not made solely at a single level or by a single authority. Instead, a network of stakeholders, including local governments, community organizations, businesses, and civil society groups are involved and decisions are made with active deliberation and consultation (Kuramochi *et al.*, 2020).

Considering the unfolding unpredictable weather events, and pressures of climate change at disposal, cities across the globe are voluntarily taking leadership roles in chasing targets of resilient, low-emission, and urban development which is sustainable (IPCC, 2018; van der Heijden, 2019). Cities are involved in interactive procedures with external actors to develop new goals, experiment with institutional innovations and integrate the aspects of climate policy in the planning process (Kern, 2019). These interactions favour collaborative and coordinated processes within a diverse set of

projects and experiments, as well as networks, platforms, or public-private partnerships aimed at achieving shared collective objectives (Ansell & Gash, 2018). City climate networks like C40 cities, ICLEI Local Governments for Sustainability, Energy Cities, the Climate Alliance, GCoM help city governments with the required assistance and promote action by exchanging knowledge and experiences. In this context, cities, actors and the networks they collaborate with are best understood as open and self-governing "units" operating within a polycentric system (Jordan et al., 2018; Ostrom, 2010; van der Heijden, 2019). Polycentricity in urban governance allows cities to engage with formally independent yet interconnected actors, like civil society organizations, transnational city networks, NGOs, and private companies to enhance collective climate action.

It is essential to note that local climate actions or networks of local actors are important, but not a substitute for the national and international climate goals, it is crucial for local climate initiatives to be closely aligned with policies at the national level and effectively incorporated into the framework of multilevel government. At local scales, diverse state and non-state actors initiate action driven by various logic and concerns, engaging in experimentation, and adjusting to multiple levels of governance (Fuhr, Hickmann and Kern, 2018). The international climate discussions stimulate processes and conditions that enable effective politics and policy creation in domestic contexts, even when domestic acts and politics serve as the drivers of change and experimentation. This approach driven by dynamic learning and experimentation is the core notion of 'Polycentric governance' in the context of addressing climate change (Dubash, 2020).

Cities particularly in developing countries often face challenges in sustaining and expanding their climate portfolios due to significant budgetary limitations and lack of essential capacities (UNFCCC, 2019). This paper aims to investigate how polycentric urban governance can play a pivotal role in enhancing cities' long-term capacities to effectively confront the challenges presented by climate change.

3 Methodology

For this study, two Indian cities - Ahmedabad and Indore were selected. The study relies on secondary data collected from government policy reports on Climate change in Ahmedabad and Indore, sourced from relevant government departments, City municipality websites and reports, city network websites, and City development and climate action plan reports. A systematic review of key policy objectives, strategies, and implementation measures was done using the exploratory and Descriptive analysis methods.

3.1 Study area

3.1.1 Ahmedabad

Ahmedabad, a thriving city with 8.2 million residents, is a key economic hub in Gujarat. It is one of 100 cities in India that are part of the Smart Cities Mission, aimed at driving sustainable urban growth. In 2013, the Heat Action Plan (HAP) was formulated for Ahmedabad, marking a significant milestone as South Asia's inaugural heat action plan and early warning system. The development of this pioneering initiative involved a collaboration between the Ahmedabad Municipal Corporation, the Indian Institute of Public Health-Gandhinagar, the India Meteorological Department (IMD), and the Natural Resources Defense Council (NRDC) (Azhar *et al.*, 2014). Ahmedabad is also part of the international alliance of cities and local governments such as GCOM, ICLEI, C40 with a common vision of encouraging and sustaining climate change voluntary action (World Wildlife Fund, 2020). The Climate Change and

Environment Action Plans (CCEAP) for Ahmedabad were created by the Vasudha Foundation with assistance from the Shakti Sustainable Energy Foundation. These organizations worked together with the Gujarat Government's Climate Change Department, the Gujarat Ecological Education and Research (GEER) Foundation, and the Gujarat Government's Forests and Environment Department (Vasudha Foundation, . Ahmedabad launched The Bus Rapid Transit System (BRTS) as a modern, high-quality public transportation system. It encompasses dedicated bus lanes, off-board fare collection, and synchronized traffic signals to provide efficient and reliable bus services. The BRTS in Ahmedabad covers a significant portion of the city, connecting various residential areas, commercial areas, and educational institutions. The system has been successful in reducing travel time, improving accessibility, and promoting sustainable urban mobility in Ahmedabad (UNFCCC, 2009). The city of Ahmedabad in India successfully raised approximately USD 26.2 million through municipal bonds. These funds were utilized for a significant cleaning project targeting the Sabarmati River, one of the region's most renowned water bodies (U20 Bulletin, G20 India).

3.1.2 Indore

The city of Indore, situated in western Madhya Pradesh and encircled by the Vindhya hills, is a key commercial district within the state. Environmental Planning & Coordination Organization (EPCO) and State Knowledge Management Centre on Climate Change(SKMCCC) in association with WRI India have developed City level Climate Action Plans (CAPs) for Indore. The strategies and issues for potential actions have been emphasized in the CAPs following the indicators listed in the Climate Smart Cities Assessment Framework (CSC-AF) published by the Ministry of Housing & Urban Affairs (MoHUA). Vasudha Foundation along with Shakti Sustainable Energy Foundation formulated The Climate Change and Environment Action Plans (CCEAP) for the city of Indore. SKMCCC, EPCO, Department of Housing and Environment, Government of Madhya Pradesh were also part of this collaboration (Vasudha Foundation, 2022). Indore Municipal Corporation (IMC) is the first civic body in India to generate revenue by selling carbon credits. Indore is involved in trading carbon offsets on the international carbon market- Verified Carbon Standard (VCS) programme, IMC receives credits for its sustainable and environmentally friendly projects (World Wildlife Fund, 2020).

4 Findings – Implications for Urban Climate Governance

4.1 Voluntary initiatives

In reaction to a heatwave emergency, Ahmedabad Municipal Corporation (AMC) collaborated with, institutions, public health professionals, civil society organizations, and additional stakeholders in 2013 to create a thorough HAP to formulate a community-specific strategy for addressing extreme heat events. In order to reduce the negative health impacts of excessive heat on vulnerable populations, the plan proposes both short-term and long-term initiatives to improve preparedness, information sharing, and response coordination. Having a specified plan for heatwave action contribute to building of institutional capacity of the city. Later, this Heat Action Plan served as a foundation for establishing HAPs and a manual for implementation, interagency coordination, and effect assessment of heatwave response actions in other cities and towns. Drawing motivation from the Ahmedabad HAP's successes, authorities at city, state, and national-level intensified their efforts to introduce extreme heat warning systems and preparedness plans (NRDC, 2020). The establishment of city-level climate action plans, as exemplified by Ahmedabad and Indore, aids in amalgamating adaptation and mitigation efforts within urban planning and development. These plans facilitate the alignment of goals with input from various stakeholders, fostering a concerted push towards goal achievement.

4.2 Coordinated action

City networks provide a platform pooling resources such as funds and knowledge to conduct climate governance experiments that are more comprehensive and robust compared to individual cities working independently (Bansard et al., 2017). Participating in climate networks such as GCoM and C40 cities, Ahmedabad, and Indore fosters collaboration, facilitates knowledge exchange, and kickstarts measurable sustainable initiatives by providing local policymakers with resources like information, data, tools, and technical assistance.

4.3 Experimentation and Innovation

In 2020, the Indore Municipal Corporation achieved a significant milestone by becoming the first civic body in India to generate a revenue of Rs 50 lakh through the sale of carbon credits. This achievement was accomplished by implementing bio-methanation plants, which prevented the emission of 1.70 tonnes of carbon dioxide. The projects were registered under the Verified Carbon Standard (VCS), a widely recognized voluntary emissions reduction standard and the world's most utilized carbon offset program. Indore is actively assisting other urban local bodies in obtaining credits and sharing valuable lessons regarding the essential steps for reducing carbon emissions. Furthermore, they emphasize the significance of proper documentation in this endeavour. Following the success of Indore, the Chennai Corporation, in partnership with Chennai Smart City Limited, has become the second civic body in India to generate revenue by selling carbon credits. They have achieved this by offering carbon offsets to international buyers in the global market.

4.4 Stakeholder engagement

Vasudha Foundation, a civil society organization, in conjunction with state and city-level government bodies, plays a pivotal role in driving progress towards addressing climate issues. The collaboration and interaction between non-state and state actors create a dynamic environment that fosters effective climate action. This engagement enables the utilization of the research organization's expertise, where one participant aids in securing financial backing (Vedeld *et al.*, 2021). Furthermore, the association of federal bodies with voluntary city-level initiatives, while not explicitly mandated, facilitates the interaction between various substate non-state and state actors and results in a collective approach to advancing climate-related efforts.

5 Conclusion

The element of polycentricity in urban climate governance facilitates experimentation and innovation by creating opportunities for diverse actors to contribute their ideas, knowledge, and expertise. The decentralized nature of polycentric governance allows for the development of networks that foster the sharing of knowledge and skills among different stakeholders. This collaboration and exchange of information enable cities to learn from each other's experiences and best practices, leading to more effective climate actions. Overall, the polycentric governance approach empowers cities to drive innovation, build networks for knowledge exchange, and respond effectively to dynamic circumstances, ultimately enhancing their capacity to tackle climate change and foster sustainable urban development.

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